IMPERIAL MYCOLOGICAL INSTITUTE
20 SEPT. 1937

UGANDA PROTECTORATE.

ANNUAL REPORT

OF THE

DEPARTMENT OF AGRICULTURE

(PART I.)

FOR THE

Year ended 31st December, 1936.

PRICE : SHS. 2/-.

Published by Command of His Excellency the Governor.

ENTEBBE:
PRINTED BY THE GOVERNMENT PRINTER, UGANDA.
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(PART I).

ADDRESSES OF OFFICERS AND TELEPHONE NUMBERS.

		P.O. Box No.	*Telephone No.*
Director of Agriculture	Entebbe ..	2 ..	90
Deputy Director of Agriculture ..	Entebbe ..	2 ..	97
Head Office	Entebbe ..	2 ..	91
Senior Agricultural Officer	Kampala ..	281 ..	15
Agricultural Laboratories and Kampala Plantation	Kampala ..	265 ..	18
Botanic Gardens	Entebbe ..	60 ..	38
Jinja Office	Jinja ..	67 ..	101–105

Principal Experiment Stations.

(1) Kampala.
(2) Serere, Teso.
(3) Bukalasa, Mengo.
(4) Bugusege, Bugishu.
(5) The Botanic Gardens, Entebbe.

Subsidiary Stations.

(1) Ngetta, Lango.
(2) Wanyange, Busoga.

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DEPARTMENT OF AGRICULTURE.

ANNUAL REPORT

For the Year ended 31st December, 1936.

(PART I).

This report reviews the agricultural situation in the Protectorate during 1936 and contains notes on work in the field and on agricultural education. Part II of the report is concerned with agricultural experimental work and as this of necessity has to correspond with the growing period of crops it is not published until toward the end of the second half of the calendar year.

Weather Conditions.

An unusual feature of the weather in 1936 was the prolongation of the rains into January and February. The usual "dry season" did not occur and the rainfall for the first six months was considerably above the average.

A dry period set in during August and although rain was plentiful in September there was a severe drought later. There was a wet spell at the end of the year which, although too late to be of value in the eastern areas, was useful in Buganda.

In most of the Northern Province the total rainfall was near the average. In Lango it was five inches above average and in the Eastern, Buganda, and Western Provinces nearly all recording stations had considerably more rain than normal.

Exports.

In Appendix No. II a full comparative statement of domestic produce exported from Uganda will be found. The following short table summarises the exports of the more important agricultural items:—

Article	Unit of Quantity.	1934.		1935.		1936.	
		Quantity	£	Quantity	£	Quantity	£
Cotton Lint	*bales of 400 lbs. net.*	285,642	2,927,796	253,242	2,822,739	321,348	3,326,879
Cotton Seed ..	*ton.*	35,689	85,947	50,685	135,779	85,762	263,180
Coffee Raw ..	*cwt.*	154,298	293,313	125,706	230,976	228,783	381,244
Tobacco manufactured ..	*lb.*	10,057	1,309	9,012	1,352	10,364	1,743
Tobacco unmanufactured	*lb.*	912,346	26,307	479,220	15,705	228,289	8,058
Cigarettes	*lb.*	68,848	11,737	110,916	13,649	207,306	24,941
Tea	*cwt.*	247	1,427	338	1,894	736	4,087
Sugar refined	*cwt.*	294,685	240,593	253,951	168,358	180,652	90,127
Rubber Plantation Raw	*Centals.*	3,269	7,111	8,314	20,394	12,819	30,724
Groundnuts	*ton.*	288	2,583	1,370	16,460	1,465	18,668
Sesame seed	*ton.*	1,375	14,264	1,620	17,629	1,551	19,227

Notes on the Major Economic Crops.

COTTON.

1935—1936 Crop.

In the Annual Report for 1935 it was stated that the estimate of 305,000 bales would probably be exceeded and the following statistics show that expectation was realised:—

Province and District.	Acreage.		Sales in tons.		Average yield per acre in lbs.	
	1934/35	1935/36	1934/35	1935/36	1934/35	1935/36
Buganda:—						
Mengo	227,223	333,618	36,821	40,705	363	273
Entebbe ..	87,395	113,678	15,927	19,948	408	393
Masaka	50,756	52,128	12,043	13,685	531	588
Mubende ..	59,857	106,053	11,532	11,455	432	242
Eastern:—						
Busoga	233,996	205,408	28,508	42,271	273	461
Budama ..	72,154	74,083	4,343	7,381	135	223
Bugwere ..	129,241	127,658	6,993	11,929	121	209
Bugishu ..	45,579	44,019	2,052	3,246	101	165
Teso	112,326	116,812	5,995	16,217	120	311
Northern:—						
Lango	78,440	90,689	9,651	10,122	276	250
Bunyoro ..	28,000	24,626	2,695	2,953	216	269
Gulu	21,800	27,700	5,202	4,013	535	325
Chua	21,107	24,000	2,617	3,946	278	368
West Nile ..	7,137	10,800	1,210	1,726	380	358
Western:—						
Toro	10,588	14,257	726	1,131	154	178
Totals ..	1,185,599	1,365,529	146,315	190,728	276	313

The total sales, 190,728 tons, of seed cotton are the equivalent (on a basis of 30% ginning outturn) of 320,423 bales.

The total number of bales actually exported during 1936 was 321,430 bales. This figure is a substantial advance on the previous record crop of 291,631 bales in 1933. The wet weather in January and February brought on the late planted cotton which yielded in a way which would have been impossible in a normal season. However, rainy weather during the picking season has its drawbacks. The Buganda crop could not be properly dried before it was marketed and much of the lint was immature and weak and the grade was not as high as it has been in recent years.

The cotton buying season opened on January 20th in the Eastern and Nothern Provinces and on February 3rd in Buganda. The opening prices paid were Shs. 9/50 to Shs. 11/- per 100 lbs. of seed cotton (the higher price refers to Busoga and the lower to the remoter zones) but owing to uncertainty engendered by decisions of the United States Supreme Court a decline took place shortly afterwards to price levels about Shs. 1/50 per 100 lbs. lower. The market recovered towards the end of March and much of the Buganda crop was sold at the higher figure.

It is estimated that the grower received an average price of Shs. 9/51 per 100 lbs. as compared with Shs. 11/73 in the previous season.

The local value of cotton seed was around Shs. 30/- per ton f.o.r. as compared with Shs. 26/- during the previous cotton season. At this price it was profitable for seed to be exported from nearly all zones including those which are more distant from railhead. 85,762 tons were exported as compared with 50,685 tons during 1935. A considerably greater tonnage would have been exported but for the wet weather experienced during the picking season. Much of the seed cotton was wet when marketed and owing to heating in the stores the seed spoiled and became unsaleable.

An increased monthly quota of cotton seed was allowed by the railway authorities and the allocations of quotas were as usual efficiently managed by the Uganda Cotton Association working in close harmony with the Railway. Some difficulty was, however, experienced at the ginneries in the matter of storage room and all ginning firms were advised to increase their accommodation in time for next season.

The wet weather during the picking season was also responsible for some loss on third quality cotton. This is not ginned until late in the season and the effect of storing it in a wet condition was to render the lint so soft that its value was much reduced.

The zone system of marketing again worked satisfactorily and within the zones the ginners carried on their organisations known as Ginning Pools. Minimum prices payable for raw cotton in each zone were calculated in the head office of the Department according to the formula prepared by the Price Fixing Committee. This Committee while adopting the basic formula used during previous seasons made slight changes designed to give a higher price to the producer in zones of high average output per ginnery and in zones where the production maintains a steady average without large variations from year to year.

In the Gulu, Chua and West Nile Zones, for the reason that they are remote and difficult to supervise, the minimum price payable was legally fixed once a week. In all the other zones which are more readily in touch with headquarters and with the local lint market the prices paid compared favourably with the minimum as calculated by formula and in no case was it necessary to fix minimum prices.

1936—1937 Crop.

Early planted cotton has been found by experiment over a number of years to give the best yield particularly in the drier areas. In Usuku County of Teso 22% of the cotton was planted in April and propaganda resulted in satisfactory increases in the proportion of May and June cotton in many other districts. Owing to the excellent rains in the first half of the year the early crop had very favourable growing conditions and although the later plantings had to contend with dry weather in August the indications at that time pointed to a large increase in production. However, a further drought occurred in October and this reduced

expectations considerably. The total acreage shown below being 1,486,638 acres as compared with 1,365,529 acres for 1935 is the largest which has so far been planted:—

	1935	*1936*
BUGANDA PROVINCE.		
Mengo	333,618	372,479
Entebbe	113,678	157,807
Masaka	52,128	65,947
Mubende	106,053	99,115
Total Acres ..	605,477	695,348
EASTERN PROVINCE.		
Busoga	205,408	188,032
Budama	74,083	80,714
Bugwere	127,658	133,286
Bugishu	44,019	47,043
Teso	116,812	150,878
Karamoja	—	100
Total Acres ..	567,980	600,053
NORTHERN PROVINCE.		
Lango	90,689	84,535
Bunyoro	24,626	24,016
Gulu	27,700	28,422
Chua	24,000	25,259
West Nile	10,800	11,700
Total Acres ..	177,815	173,932
WESTERN PROVINCE.		
Toro	14,257	15,142
Ankole	—	2,163
Total Acres ..	14,257	17,305
GRAND TOTALS ..	1,365,529	1,486,638

While the seed planted early gave little cause for complaint there was a partial failure of germination in the July sown plots. It was found that much of the seed had been stored in a damp condition and had heated in bulk. It became necessary, therefore, to requisition large additional supplies to replace seed thus damaged. Buganda and Busoga were the areas chiefly affected. The ginners gave every assistance and in many cases provided free transport for the seed.

A great deal of replanting had to be done but eventually a fair stand was obtained. Satisfactory rains fell at the end of the year and the Department's estimate of the crop for the 1936–37 season is 330,000 bales.

1936 COTTON COMMITTEE.

A Committee was appointed by the Governor to report on the continuation of the Cotton Tax and other matters affecting the cotton industry. Their report has been published. The Cotton Tax is being continued at its present rate of 2 cents per lb. of lint pending further consideration. The Committee discussed the publication of the price fixing formula which has so far been kept secret and it has been decided in future to advise the Ginning Pools, the Provincial Administration, and Native Governments of the formula confidentially. To facilitate centralisation of ginneries and thus reduce costs it was recommended that where a ginner

transfers his machinery from one ginnery to another he shall be permitted to retain the right to buy cotton at the silent ginnery. It was considered that although the cotton crop has increased considerably of recent years there was no justification for an increase in the ginning capacity of the country as a whole and that where an individual ginner wished to increase his ginning capacity he should be permitted to do so only by transfer from silent ginneries.

The Committee advised all ginners to increase their storage room by 20% to deal with the increase of crop. The Committee also considered the opening date for marketing and the close season for cotton and recommended that the Cotton Ordinance be amended so as to give power to fix dates before and after which it would be illegal to plant cotton in any specified area.

Coffee.

It had been felt that with the rising importance of coffee in the three East African Territories it was desirable to set up machinery for inter-territorial discussion of mutual problems. A conference was called by the Secretary of the Governors' Conference and it is satisfactory to be able to record that as a result of this meeting a permanent East African Coffee Producers Committee has been set up.

A further increase in the acreage of coffee is recorded—the total at the end of the year being 57,709 acres as compared with 49,144 acres in 1935. The value of coffee apart from a temporary rise in February remained very low and the new crop met with unsatisfactory prices. Towards the end of the year, however, the market recovered and rose to a level higher than it has attained for some years.

Exports of coffee were 229,187 cwts. valued at £381,153 as compared with 125,706 cwts. valued at £230,976 in 1935. The Robusta crop was unusually late in ripening and the 1936 exports were swelled to some extent by coffee that would normally have been dealt with during the previous year. Even so the exports represent a notable increase in production.

ARABICA COFFEE.

Bugishu.

Cultural Notes.

The Department maintains four large central nurseries for raising seedlings. The seedlings are kept until after the cotyledon stage when they are transplanted into four nurseries maintained by the Native Government. At six months they are topped and soon after that operation they are ready for distribution. The usual number issued is 50 plants for those who already have a coffee plot and 100 for beginners. The demand for plants remains as strong as ever. During 1936 1,274,450 plants were distributed. It is estimated that the acreage of coffee in Bugishu is now 6,080 acres.

Coffee is grown at altitudes between 5,000′ and 8,000′. At the lower levels the pruning system encouraged is a simple modification of the multiple stem system. In the North Bugishu hills, however, the single stem system has been customary. The existence of two pruning systems has been found to lead to confusion and it has been decided to change over to the modified multiple stem system throughout the district. There are now four Pruning Clubs in existence. The gangs of pruners employed by them were given a course of instruction at the Bugusege Plantation. These men are doing good work among the multiple stem trees and in stumping old trees. It is only where Pruning Clubs are in existence that much progress has been made with stumping. Their headquarters are Bulago, Makuyu, Buhugu and Buwalasi.

Antestia although not serious at present has increased in importance of recent years and pruning in an open style becomes the more necessary.

A feature of coffee growing in Bugishu is that since 1930, when for the second year in succession a majority of the trees looked yellow and particularly unhealthy, growers have been encouraged to mulch across the slope with banana leaves once each year. It was known in general that this procedure would supply a certain amount of food, would prevent scorching of the otherwise bare soil, would help to conserve moisture and would tend to prevent erosion. At the end of a six year trial period it can now be said that the practice of mulching has made all the difference to the general health of the trees. In 1936 the enthusiasm for mulching on the part of the growers appeared to be on the wane and vigorous propaganda by all concerned has, therefore, been a feature of the year's field activities in Bugishu.

While on this subject it may be of interest to say that in 1930 there was no experimental evidence of the value or otherwise of banana leaves for mulching coffee. Something drastic had to be done, and mulching seemed likely to give the trees the respite from over-bearing that they obviously required. Experiments were laid down at Bugusege and the results now prove that the practice gives excellent results under Bugishu conditions. At this little experimental station one can now see that continual mulching on the contour is having a terracing effect and one can also see that plots not mulched contiguous to mulched plots have lost nearly a foot of soil after five years of clean cultivation.

The Bugishu Coffee Scheme made a trading loss in the year ending June 30th, 1936, and the opportunity was taken to re-organise by setting up for purposes of control an Advisory Committee consisting of the Director of Agriculture, the Treasurer and the Provincial Commissioner and by inviting three firms primarily interested in the Uganda Native Coffee Industry to co-operate.

In order to produce a better quality of coffee the Bugishu Coffee Scheme had spent some £18,000 in capital works throughout the closed areas and had based costs on the not unreasonable assumption that there would be a 1,000 ton out-turn. In fact, however, much coffee, unfortunately badly prepared, found its way out of the closed area into *dukas* in Mbale

and North Bugishu and the Bugishu Coffee Scheme purchases were only 691 tons. It incurred in consequence a substantial loss and also much badly prepared coffee left Bugishu.

Buying arrangements were re-organised, the buying being put into the hands of three reputable firms and of the Bugishu Coffee Scheme itself. Leakages of poor quality coffee to the bazaars fringing the old declared areas were stopped by establishing Bugwere and Budama and the whole of Bugishu as "declared areas" under the Native Produce Marketing Ordinance.

On June 30th, 1036, the Bugishu Coffee Scheme trading loss was approximately £4,000. Unsold stocks of coffee were subsequently sold at higher prices than were anticipated and the £4,000 included an item in respect of interest paid to the Native Administration calculated at a higher rate than is now considered fair and reasonable. Adjusting for these two items the loss was reduced to £2,391. In order to re-coup this loss the prices paid for the 1936–37 crop have been below the formula price and the licensed firms have paid the difference directly to the Bugishu Coffee Scheme.

With the re-organisation it is hoped that the Bugishu Coffee Scheme loss will be extinguished and that there will be a substantial improvement in the quality of even native prepared parchment originating in Bugishu.

The 1936–37 crop will be a moderate one only but in spite of the necessity for paying just under market price the world prices have advanced to such an extent that the individual growers will obtain a very satisfactory income.

Arabica in the Western Province.

Note on Policy.

In the Western Province the policy of encouraging the growing of coffee of one kind or another has undergone revision. It may be of interest to outline the reasons. The basic factor in finding crops suitable for this province is that on account of geographical position costs of transport to the coast are higher than from other parts of the Protectorate and one is more than ever limited to the production of high priced crops that can stand these charges. Most of the Province is too cold for the successful development of cotton and the only practical alternative is coffee. Departmental policy has been to encourage the planting of Arabian coffee at the higher elevations and Robusta at the lower.

From the beginning it was known that much of the Province was too dry for the optimum development of coffee and growers were advised to mulch their coffee with cut grass in order to minimise the practical effects of this natural disadvantage. Where practicable they were also advised to apply kraal manure at the rate of one *debe* (4-gallon petrol tin) per tree per annum.

Neither the mulching nor the manuring have been adopted widely, however, and although 272 tons of coffee, worth to the growers

approximately £6,000, were produced in 1936 in Ankole and Kigezi yet the bug *Antestia* did much damage and it became necessary to review the position.

There are two factors in the situation that are important. One is that the insect *Antestia* has been a consistent nuisance in these areas wherever Arabica coffee has been planted on strongly acid soils. There is insufficient proof to enable the relation between *Antestia* and acid soils to be stated precisely but there is sufficient presumptive evidence to justify one in assuming for practical purposes that a relationship exists. In the neutral or basic volcanic soils of Bunyaruguru County in Ankole and Bufumbiru County of Kigezi this insect has done no commercial damage. The policy has, therefore, been modified so as to avoid distributing Arabica trees in areas where the soils are very strongly acid. It has also been changed slightly with a view to adopting practices designed to correct soil acidity in those areas where acidity is not too marked. For this purpose growers are again being advised to mulch with cut grass or with kraal manure and are also being advised to apply wood ashes to the soil in the coffee gardens.

The second factor is that Robusta coffee has now been proved to grow successfully considerably above the range considered safe in 1930 and on soils that are considered to be too acid for Arabian coffee. The policy has, therefore, been modified to take advantage of this information and nurseries of selected Robusta have now been established to supply Robusta plants at these higher elevations.

It is estimated that the acreage of Arabica coffee grown by natives in Toro District is now 666 acres, only a slight advance on the 1935 figure.

In Ankole the acreage under Arabica was increased by 378 acres to the estimated total of 4,169 acres. Marketing has been brought under control by applying the Native Produce Marketing Ordinance. Nine market centres have been established at each of which not more than 6 licences may be issued by the District Commissioner. Most of the coffee in this district is dried in the cherry and then hulled by the natives themselves. The sales in 1936 were 190 tons which is an increase of 62 tons from the previous year.

In Kigezi District as already mentioned the cultivation of Arabica is much handicapped by the prevalence of *Antestia,* particularly on the acid soils. *Antestia* in Kinkizi County has necessitated the stumping of most of the trees over five years old. It is hoped that soil acidity may be overcome by the practice of mulching, and by the application of cattle manure and wood ashes. Simultaneously with the issue of trees propaganda to that effect is being carried out. About 1,000,000 trees were given out during the year. Marketing is now done at four centres established under the Native Produce Marketing Ordinance, there being 6 buying licences at each centre. The total crop was 82 tons as against 63 tons in 1935.

Arabica in the Northern Province.

Cultivation of coffee in the Northern Province is confined to Bunyoro and the West Nile and in both districts the area is small. There are about

25 acres grown by natives in Bunyoro. In the West Nile the policy has been to give attention to a few groups of people rather than to diversify propaganda. There are now 355 growers each having about an acre. The first crop will be taken in 1937. Here again mulching with cut grass, the use of kraal manure and wood ashes are all being encouraged.

ROBUSTA COFFEE.

Robusta in Buganda Province.

In my last Annual Report I had to record that the marketing and subsequent treatment of the Robusta coffee grown in Buganda left much to be desired. Two important steps have been taken to improve matters. Coffee marketing in Buganda Province has been brought under the Native Produce Marketing Ordinance. Market centres in which there are up to six buying stores now replace the old system, or lack of system, in which most of the coffee was purchased in small shops. By confining the marketing to defined centres supervision will be facilitated. It is an offence to purchase wet coffee and in due course it is hoped that an improvement will be effected.

The second measure of improvement is the control of the treatment of coffee after purchase, under the "Hulling of Coffee Ordinance". The erection of small mechanical hulling plants which were carelessly worked and in which much wet coffee was hulled gave cause for alarm on account of the inferior quality of coffee which they turned out. Under the Ordinance it is an offence to operate a hulling plant without a licence or to increase machinery without a permit. The plants that have been licensed can now be inspected and controlled and an improvement in the quality of coffee turned out by them can confidently be anticipated.

The question of quality in the Buganda coffee crop has also received attention during the year. Much propaganda has been carried out among the growers with the object of having the crop picked better than has been the case in the past. It is still only too common to find a high percentage of green immature cherry picked with the ripe fruit. Such immature cherry gives rise to shrivelled and pale beans and increases the number of "defectives" in the hulled coffee.

Satisfactory progress is reported with the construction of cement drying floors by native coffee growers. In the old Entebbe District there were 59 laid down during the year and in Bulemezi a further 20.

Three new central coffee nurseries were established with funds granted by the Buganda Native Government and there are now twenty all told in Masaka and Mengo districts. 900,000 trees were issued. They are all of the Nganda or spreading type from seed of trees selected by the Botanist. These parent trees are mostly growing in native plots in Masaka but the Department's plot of selected trees at Mukono will before long provide a useful supply. At this centre besides the nursery there are plots of selected coffee which are kept mulched and pruned as a demonstration to the growers.

Robusta in Bwamba.

In Bwamba County of Toro District there is a flourishing Robusta industry. The acreage is now 1,200. The marketing arrangements under the Native Produce Marketing Ordinance continued to work satisfactorily. The crop was 104 tons which is more than double the previous year's total. Prospects for the future are decidedly encouraging for the growers are interested in the crop and take pains to follow the advice given them.

Robusta in Busoga.

Much propaganda was carried on in all parts of the district suitable for coffee to ensure correct planting methods and to encourage planting. There is evidence of increased interest in the crop and while real expansion is unlikely to take place before the first plantings are earning money nevertheless 36,000 plants were issued during the year.

INSPECTION OF COFFEE AT CURING WORKS.

After full discussion by the Coffee Board, Government was advised of the necessity for the appointment of a Coffee Grading Inspector and this officer assumed duty on August 1st.

All coffee treated at the licensed Curing Works, other than the one at Bululu, is subject to inspection and export certificates are now issued by the Coffee Grading Inspector and not as heretofore by the manager of the works. This officer's salary and expenses are being met by a charge of 35 cents per bag. During the last quarter of the year 34,666 bags of coffee were inspected of which 827 bags were rejected as not conforming to the grade marked on the bag. While it is early yet to comment on the working of the inspection scheme there can be little doubt that the industry will benefit through the standardisation of exports.

There are seven licensed Curing Works coming under the inspection service. Two of these are at Masaka, two in Kampala, one at Port Bell and two are estate factories. 8,412 tons of hulled coffee were exported through the Curing Works as compared with 4,611 tons during 1935.

Tobacco.

General.

The local demand for tobacco leaf has increased greatly during the year and at the moment is substantially in advance of the available supply. Memories are short, however, and it is doubtful if all the tobacco now asked for could be sold if it could be produced. In 1934 there was a record crop of 1,628,972 lbs. and there was great difficulty in disposing of it. In the following year, however, there was a partial crop failure, the total crop being only 913,869, and the demand became stronger. In the same year there was an upward revision of the customs duty on cigarettes and tobacco that had the effect of extending the local market to the local manufacturers and the demand for local leaf became correspondingly stronger. Coupled with these two factors both years have been prosperous ones in Uganda and the spending power of the local population has been considerably above the average.

Whether or not the strong local demand is likely to be permanent, the fact remains that there is a sound case for increasing production provided that this can be done in peripheral areas where the growing of tobacco would not merely replace an established crop such as cotton or coffee.

With a view to increasing supplies steps have been taken to make tobacco growing a little more attractive by paying for hail damage from cess funds. Also a small second crop grown in the Autumn rains was arranged for in the West Nile District and an experiment was laid down in Ankole on a fairly large scale to test the suitability of certain parts of that district for development of the crop.

Tobacco has now been grown in Uganda for ten successive years and the occasion was suitably marked by Government setting up a representative Committee to review the position generally and to make recommendations.

A comprehensive report was published and at the time of writing its recommendations are still under consideration.

Fire-Cured Crop.

In Bunyoro District the poor crop of 1935 resulted in some loss of keenness on the part of the growers but after a tour undertaken by the Mukama and the Katikiro interest revived.

Seed beds were sown at the end of January. Germination was good but growth rather slow and the unusually wet weather resulted in more "damping off" and eelworm than is customary. Transplanting began early in March and continued until April 25th. There were good rains in most parts of the district and the early plantings in particular came on well. The total number of plots planted was 7,464 and the estimated acreage 2,390 acres as compared with 2,300 acres in 1935. Weather conditions were favourable for curing.

Bunyoro is a Declared Area under the Native Produce Marketing Ordinance and the number of buying licences which may be issued is limited to twelve. Actually five licences were issued, four to local manufacturers and one to an exporter who has established connections for Grade I leaf overseas and who disposes of the lower grade leaf locally.

The marketing season included September, October and November. Both the quality of the crop and the manner in which it was graded were good although the leaf was in a rather wet condition owing to heavy rains during the marketing period. The total amount bought was 1,012,294 lbs. as compared with 825,048 lbs. last year and 1,469,142 lbs. in 1934.

The prices payable to the grower were fixed at 27 cents for Grade I and 17 cents per lb. for Grade II. The average price received by them was 22·17 cents per lb. As before buyers were required to pay a Cess of 3 cents per lb. on their purchases and rebate of Cess was allowed on all tobacco leaf exported to destinations outside East Africa.

Air-Cured Crop.

At the request of the principal buyer in the West Nile District production was changed over from fire-cured to air-cured tobacco, Amorella

being the chief variety sown in the nurseries. Weather conditions were excellent, 775 acres were planted, and the crop yielded and cured well. The handling of the crop still leaves much to be desired owing to the comparative inexperience of the growers.

Three buying licences were issued, all of them to local manufacturers. Prices were fixed at 26 cents per lb. for Grade I and 16 cents per lb. for Grade II. The average price received by the growers was 20·43 cents per lb. As in Bunyoro the buyers paid a Cess of 3 cents per lb. on their purchases. The crop totalled 287,662 lbs. as compared with only 88,821 in the previous year and 159,830 lbs. in 1934.

Tobacco Cess Fund.

The chief item of expenditure from the Fund has been the cost of the Tobacco Packing Factory at Masindi. This has now been paid for. Other payments include native staff employed in the erection of buying posts, the cost of equipping nurseries with watering cans, etc., and other minor services. In Bunyoro Shs. 108/- and in the West Nile Shs. 245/- were paid to natives in compensation for loss of tobacco due to fire in the curing barns. It has been arranged for 1937 to pay compensation for loss of crop in the field by hail. Growers who have lost their crop in this manner are naturally discouraged and it is hoped that the knowledge that compensation can be paid from Cess funds will give a greater sense of security and thus encourage tobacco growing. A new charge against the Fund is the sum of £300 in respect of the salary of the Tobacco Factory Manager.

Government Tobacco Packing Factory.

Repairs to the part of the factory which was burned down were not completed by the end of the year and the factory work was somewhat hampered and expenses have been a little higher in consequence. 549,649 lbs. of the 1935 crop were packed. Packing of the 1936 tobacco is still proceeding. The Tobacco Factory Manager was appointed in April. He is responsible for the factory work during the appropriate season and is available for assistance in the field during the remainder of the year.

Experimental Crops.

In the West Nile District a small area of late planted tobacco has been planted as an experiment and should provide useful experience when the crop comes to hand in February, 1937.

In Busoga District 86 natives grew tobacco and produced a fire-cured crop of 4,115 lbs. of leaf. The yield was fairly satisfactory and the leaf was purchased by the British-American Tobacco Company at their Jinja factory.

In Ankole District the experiment consisted of growing 100 acres of White Burley in Igara County and 200 in Bunyaruguru County. Unfortunately the seed arrived late and planting had to be delayed for 6 weeks so that the experiment started off rather badly.

Groundnuts.

The chief groundnut district is Teso where 55,917 acres were grown. The acreage has increased considerably during recent years in response to propaganda for the development of this crop as an export product and the marketing arrangements are in the hands of a single firm licensed under the Native Produce Marketing Ordinance for three years. With European prices around £15 a ton the price in Teso averaged 7½ cents per lb. a very satisfactory figure. The amount purchased was 1,200 tons which, although an increase on the previous year, was disappointingly small. As a second string to cotton in that area the crop will be very valuable in an emergency but so long as a reasonable yield of cotton can be obtained and so long as the price of cotton does not decline it seems unlikely that the export of groundnuts will reach substantial figures. In the meantime the crop is excellent as a food crop and fits very well into the cotton rotation so that the large acreage is satisfactory.

Sim-Sim.

This crop is grown throughout the country but is chiefly important in the Northern Province where it is a secondary economic crop when prices are good. This year with home values over £15 per ton and at one stage as high as £18 the profitable figure of 9 cents per lb. was offered in Lango District where native growers sold over 1,000 tons as compared with 600 tons during the previous year. Total exports from the Protectorate were 1,550 tons as compared with 1,375 tons for 1935.

Sugar.

While the total acreage of sugar on the Lugazi and Kakira estates was increased from 13,000 acres to 15,534 acres the production of white sugar was 20,347 tons as compared with 25,394 tons in 1935.

Permission was given to the Kakira factory to instal a new 15 roller milling plant in replacement of older machinery.

The local consumption of sugar continues to increase owing to the rising prosperity of the native and the recent policy of millers to maintain the retail price at a lower level. The present price of sugar is 10–12 cents per lb. The consumption of sugar in Uganda was 7,901 tons as compared with 6,117 tons in the previous year. Of the balance 3,328 tons went to Tanganyika and 5,705 tons went overseas.

Tea.

Planting up of the area granted under the tea restriction scheme proceeded. 449 acres were planted and the total acreage was 2,139 acres at the end of the year.

In view of this activity it was thought that some advice on the management of young tea by a recognised man of experience would be appreciated by Uganda Planters. At the request of Government Dr. Weddige of Tanganyika spent nearly a month in Uganda visiting planters. His report has been printed for their information and his visit was much appreciated.

The production of tea in Uganda was 262,054 lbs. made tea of which approximately 82,432 lbs. were exported outside East Africa and 179,622 lbs. were locally consumed. I welcome the formation of the Uganda Tea Association which came into being early in the year and also the formation of the African Tea Association.

Rubber.

It was estimated that the acreage under rubber was 11,545 acres. With the continued rise in the value of rubber much tapping was done. Exports have risen from 3,269 centals in 1934, 8,314 central in 1935 to 11,575 centals in 1936. At the end of the year a number of the smaller and more or less abandoned estates were being brought into use and it is expected that rubber exports will show a still further advance.

Pests and Diseases.

The Entomologist for special work on the Pink Bollworm made further surveys and discovered this pest in Busoga and in Teso from which districts it had not previously been reported. It is now present to a small extent in nearly all the cotton growing areas. It has not, however, proved to be any more serious in its effects than was indicated in my last report. The most important measure for controlling it will continue to be the uprooting and burning of the cotton crop as early as may be practicable, and the maintenance of the close season for cotton cultivation.

Experimental evidence over a number of years has proved that the highest yield is obtained from the early planted cotton and early planting is, therefore, encouraged. On the other hand there is a large proportion of the cotton which cannot be planted until after the harvest of the grain crop. For this reason picking extends over several months and it would not be practicable, considering the country as a whole, to make the uprooting date much earlier without appreciably reducing the yield. However, in such areas as Usuku County of Teso District, where early planting is becoming the practice, the date is set considerably earlier than elsewhere and wherever the crop ripens off quickly due advantage of it is taken to bring in the close season as soon as possible.

The Plant Pathologist's work has been largely concerned with the study of Wilt Disease of cotton. Both *Fusarium* and *Verticillium* wilts have been found to occur widely. While this gives cause for anxiety lest wilt disease should assume epidemic proportions, at present it attacks only a small number of plants and is not a major pest.

Small hopper bands of the Red Locust *Nomadacris septemfasciata* which occurred in Ankole, Masaka and Entebbe districts early in the year were broken up by the inhabitants and no appreciable damage was caused to crops. Adult locusts developed in June and these were supplemented by a number of swarms from territory south of the Protectorate. While the infestation extended to Teso and Bunyoro and egg laying was reported from several districts little damage has been done.

Work of the Field Division.

While the foregoing accounts of the cotton, coffee, tobacco and oil seed crops are largely based upon the reports of work done by officers of the field division some notes on other aspects of their work are given below.

Organisation remained unchanged with a Senior Agricultural Officer stationed at Jinja in charge of the Eastern Province, the Senior Agricultural Officer, Kampala, responsible for the Buganda and Western Provinces and the Agricultural Officer, Masindi, in charge of the Northern Province. At the end of the year 3 new Agricultural Officers were appointed and it is intended that one shall be posted to Soroti for special work on erosion problems.

Agricultural Surveys.

In my Report for 1935, reference was made to the appointment of an Agricultural Survey Committee and to surveys which were being made by Agricultural Officers.

The serious problems arising from soil erosion and desiccation, which have assumed such formidable proportions in other parts of Africa, can only be combated by foresight and by the formulation of a carefully planned and co-ordinated "long-range" policy of agricultural development.

A study of the figures published in the Annual Blue Book over the past twenty years reveal that the acreage under cultivation of both food and economic crops is steadily mounting whilst the number of livestock maintained is increasing also. With the exception of the northern part of Teso District, Uganda is not confronted with an immediately threatening situation, but the object of the mutala surveys is to give a basis on which programmes of agricultural development, over a period of years, may be framed to maintain the precious heritage of soil fertility.

A questionnaire of details required for Mutala Survey Reports and an account of two of the completed mutala surveys were included in my Report for 1935. This work has been continued and amplified during 1936, nineteen surveys having been completed by the end of the year. A summary of these surveys, prepared for consideration by the Agricultural Survey Committee, is to be published as a separate departmental pamphlet, and reports of the 19 surveys in detail will also be published. The numerous mitala or "hundreds" studied have in the summary been classified into two main types, the elephant grass group and the short grass group. Within these groups they are relegated to overpopulated, balanced and overpopulated categories.

Much valuable information has in this way been collated as to population densities involved, both human and animal, systems of agriculture employed as well as many other factors important from social considerations such as fuel and water supplies.

To bring out pertinent facts rather than to suggest remedies is the intention of the summary, for further surveys are being made over a period of years which may modify our present knowledge.

The work of the Agricultural Survey Committee has now been enlarged to embrace nutrition studies. An account of nutrition in Teso, based on an agricultural and nutrition survey carried out in conjunction with an officer of the Medical Department, entitled "Nutrition Report No. 1—Teso", by Messrs. M. G. De Courcy-Ireland, Agricultural Officer, H. R. Hosking, Botanist, and L. J. A. Leowenthal, District Medical Officer, has been published.

Ploughing.

The use of ploughs in Teso, Bugwere and Lango has again increased. Properly done there are considerable advantages in the saving of labour and the depth of cultivation which results; but the temptation is ever present to plough quickly and therefore badly. Ploughing demonstration plots have been maintained at various centres in Teso and Bugwere and in Lango 464 men were trained. The ploughing competitions which are a normal feature of district work could not be held because of restrictions placed on the movement of cattle during the outbreak of rinderpest.

Manuring.

With the intention of bringing the use of manure into general practice in cattle districts fifteen of the chiefs in Teso District built covered sheds in 1935 and these have been maintained. The manure made in them has been used on the chiefs' land as a demonstration. Two more of these covered kraals have been built in Bugwere. It is hoped to extend this kind of demonstration to the Prison Farms which are being established throughout the Eastern Province for the supply of food to prisoners.

Show.

The Lango Health Show at Lira which was mainly concerned with medical and agricultural welfare was a great success. The main agricultural exhibit was a model small holding which had been planted in good time to demonstrate a rotation suitable for Lango needs. The buildings both for the family and the live-stock were intended to show how the native could improve his conditions of living with the materials to hand, and particular attention was directed to the use of simple implements, such as a sledge for manure carting.

Beeswax.

Native instructors were employed in all districts of the Buganda and Western Provinces after training by the Entomologist in beekeeping methods. The amount of beeswax offered for sale has been small and progress is likely to be slow.

Wheat.

This crop is grown on a small scale in Toro district. The area planted in 1936 was approximately 1,000 acres or the same as during the previous year. There is a tendency for the cultivation of this crop to extend slowly, more especially as prices have been considerably higher of late. Markets are arranged to suit the convenience of the growers who bring their crop for sale on specified days. Some 69 tons of wheat have been marketed in this manner during the past two years.

Large quantities were also sold elsewhere, mainly in Fort Portal itself and at Mission centres. There was a good demand for this commodity during 1936, and prices rose from the 1935 level of three-and-a-half cents per pound to five-and-a-half cents during the year under review. No further development took place in 1936 with the erection of milling machinery. It is not felt wise to encourage the expansion of the industry beyond the stage where it satisfies local demand in view of the well established industry in Kenya. The Department have imported several varieties, however, which were tested in trial plots during 1936 on the new Kyembogo Farm. Observations on disease resistance, tillering, habit, etc., are being made on these varieties, and it is intended that the more promising ones shall be included in a variety trial during 1937.

Agricultural Education.

The work of the Education Section of the Department continued on the same lines as formerly and the details will be found in the report of the Senior Agricultural Officer (Education) which is reproduced in full.

It will be observed that courses of instruction were given to Schoolmasters at the Serere and Bukalasa Experiment Stations, where an Agricultural Officer of the Education section is stationed.

It is considered to be highly desirable that agriculture should be taught in all the schools and for some years these short courses have been given to schoolmasters from the Middle, Secondary, and Elementary Schools in order to set them on the right road, as far as that can be done in a period of two to three months.

The training of small holders is being carried on on much the same lines as before, but more attention is being paid to grazing questions. Hitherto the cattle have been grazed on common land outside the holding but it is proposed to adapt one or two of the holdings so as to make them self contained for the feeding of stock. In my last report I indicated the views of the Advisory Committee for the Development of Native Agricultural Production on educational questions and it is gratifying to be able to record the excellent response of Native Administrations to the suggestion that small holders should be supported by a loan, on leaving the training centre, to enable them to set up their own holdings. There are now a number of these men who have received grants from their local Native Administrations and it is hoped that they will be successful, and by example spread the knowledge they have gained at Serere and Bukalasa. Progress is slow and education on these lines must still be considered as in the experimental stage.

There has in the past been a conspicuous absence of well trained African staff and it is satisfactory to be able to report that Makerere trained students are now coming forward in larger numbers. During the year 6 students successfully passed out of Makerere all of whom were appointed African Agricultural Assistants on probation. There are now 17 of these men on the staff, 7 being attached to technical officers and 10 to Agricultural Officers in the field.

It has been difficult to obtain the required number of candidates particularly from the more backward districts and in order to overcome this difficulty Government agreed to provide ten agricultural bursaries at Makerere and Native Administrations have come forward in a most helpful manner by agreeing to provide a further 12 bursaries.

Boards and Committees.

The Coffee Board met three times during the year and made recommendations on coffee legislation, the coffee inspection service, marketing of the Buganda crop, research, charges for curing of coffee at Licensed Curing Works and many minor points. Five members of the Coffee Board were selected to attend the inter-territorial Coffee Conference which was held in Nairobi in July.

The Tobacco Advisory Board, has now been appointed as a standing board to advise Government in all matters affecting the tobacco industry in Uganda.

One meeting of the Trade and Information Local Advisory Committee was held for the purpose of organising the publication of a monthly trade report. This report now contains sections provided by the Customs, Land Office (for mining information), Veterinary, Agriculture, Forestry, Railways and Treasury Departments. The report is issued once a month with the *Official Gazette.*

Acknowledgments.

Finally it gives me great pleasure to acknowledge the willing and ready assistance that has been given to the Department and to myself by members of the Coffee Board, of the Tobacco Advisory Committee, of the Cotton Committee, 1936, of the Cotton Price Fixing Committee and of the Agricultural Survey Committee. Also individuals too numerous to mention by name both officials and unofficials have given assistance that is gratefully acknowledged. The Imperial Institute, the Empire Cotton Growing Corporation, the Institute of Entomology and the Royal Botanical Gardens, Kew, have continued to render invaluable assistance. As the report itself indicates all members of my Department have given loyal and faithful service of a type that it is a pleasure to acknowledge.

The Passing of Sir James Currie.

While this report was being written I learned of the death of Sir James Currie. This news has been received in Uganda with profound regret and sorrow. For many years Sir James had taken a keen personal interest in the cotton problems of Uganda and it is partly due to him and to the Cotton Corporation over which he presided so ably that the cotton crop in Uganda has reached its present size.

J. D. TOTHILL,
Director of Agriculture.

ANNUAL REPORT ON AGRICULTURAL EDUCATION IN UGANDA FOR 1936.

Staff.

European.

Mr. E. G. Staples, Superintendent of Agricultural Education, was on duty throughout the year.

Mr. C. W. L. Fishlock, Agricultural Officer, returned from leave in March and took charge of educational duties at Bukalasa on the 13th of that month.

Mr. M. G. de Courcy-Ireland, Agricultural Officer, was in charge of educational work at Serere until he went on leave in July.

Mr. R. K. Kerkham, Agricultural Officer, was in charge of educational work at Bukalasa from the beginning of the year until Mr. Fishlock's return from leave in March.

Mr. E. Williams, Agricultural Officer, was in charge of the Makerere College 3rd Year Agricultural Class from the beginning of the year until he took over work at Serere from Mr. Ireland in July. He returned to Kampala in November.

Mr. J. M. Watson, Agricultural Officer, was in charge of educational work at Serere during November and December.

African.

Omw. S. B. Sevume, African Agricultural Assistant, acted as assistant to the Agricultural Officer (Education), Bukalasa, throughout the year.

Omw. B. K. Kaumi, African Agricultural Assistant, was in charge of the smallholdings and smallholders' class at Bukalasa under the Agricultural Officer (Education) throughout the year.

Omw. Y. K. Musitwa was stationed in Busoga throughout the year in charge of school garden inspection.

Omw. J. Odyek worked under the Agricultural Officer (Education), Serere, throughout the year.

I. Vocational Agricultural Education.

1. The Training of Agricultural Assistants.

Details of the five years' course in Agriculture, that is given in connection with Makerere College, have been described in previous annual reports. During the first two years of the course the students continue their general education at Makerere College, in the third, fourth and fifth years they are trained by the staff of the Agricultural Department.

Out of a class of nine students, six successfully completed the course at the end of the year and will enter the Department as African Agricultural Assistants. Two failed and the remaining student was referred back to take his fifth year again in 1937. The quality of the best two, or possibly three, of this class is fully as good as the best of those who have previously passed through the course.

Twelve students completed the fourth year of the course. Of these, eight passed and will proceed to their fifth year in 1937. One will be required to take the fourth year again and three have failed.

The third year class consisted of fourteen students of whom twelve passed at the end of the year. Two will be required to take the year again. It is interesting to note that two of the best students of this year are natives of the Kikuyu tribe from Kenya. One of these is returning to Uganda for his fourth year to gain experience of the cotton crop; the other will get his practical training in Kenya.

It may be of interest to give a short summary of the practical training during the fourth and fifth years of the course at Bukalasa and Serere. The following, taken at random, includes some of their activities during the month of July of this year:—"Understudying the Plantation Manager, laying out plots, house building, planting crops in field trials, marking out a cotton variety trial in the district, conducting germination counts on cotton, priming and rogueing tobacco, insect control on tobacco, keeping muster rolls, making observations on Cassava variety trial, banana weevil control, in charge of the plantation store, visiting coffee growing areas with the Agricultural Officer and learning to make coffee drying floors, working on Mealy Bug control on coffee, cross-fertilisation of Cassava, keeping meteorological records, working under the senior headman, acting as headman of a gang of labourers, self-fertilising tobacco, working on soil erosion experiment, in charge of smallholdings, contour terracing, keeping work records and farm diary, looking after working oxen, making silage, learning how to make bricks, making farmyard manure and compost; weighing, hand ginning and calculating the ginning outturn of various cotton varieties; treatment of minor injuries to cattle, measuring land, calculating areas, helping with the district crop survey, working on grass variety plots, and weighing individual plant yields of cotton selections."

2. The Training of Agricultural Instructors.

The following courses were held during the year for agricultural instructors working either under the Protectorate Government or under one of the Native Administrations and for those who are being trained for this work:—

Bukalasa.—A two-months' course was held during May and June and was attended by twenty-five instructors from the Kigezi District of the Western Province and six from Buganda.

A further small class of instructors from Busoga also attended a course during July and August.

Serere.—A two-months' course started on February 26th and was attended by eighteen instructors from various districts in the Eastern and Northern Provinces.

A small class, including, for the first time, two boys from Karamoja were given a four months' training later in the year.

These courses included instruction in the measurement of plots by pacing, simple calculation of areas, the laying out of land in plots of known area and regular shape, lay-out of a smallholding, the preparation of land for and the proper spacing and planting of all crops, the care of plantain gardens, the rotation of annual crops with periodic resting of the land under long grass, mulching, the care of cattle, the making of kraal manure, the proper application of this to the land, the making and care of coffee nurseries, and the making of cement drying floors.

3. Courses for Chiefs.

At *Bukalasa* two courses for chiefs were held during the year—a short course for chiefs from the Western Province during September and a two-months' course for chiefs from Buganda, Busoga and Bunyoro from mid-October to mid-December.

The former was attended by three Gombolola and fifteen Miruka chiefs from Kigezi District.

The latter course was attended by three Gombolola and fourteen Miruka chiefs.

In addition to the usual demonstrations, lectures and practical work, such as plot measurement and estimation, the chiefs were taken round the district and shown such improved practices as the construction of cement drying floors, etc.

All of the chiefs took a very keen interest in their work and were obviously keen to make the most of their time while at Bukalasa.

Serere.—Owing to the success of the series of short fortnightly courses for Teso chiefs held last year, these were repeated during 1936 for chiefs from Bugwere District. Good ploughing and the prevention of soil erosion were the subjects that were stressed. Four of these courses were held during October and November and they were attended by eighty-seven chiefs in all, ranging in status from Saza Chiefs to Miruka Chiefs. They all showed a keen interest in what they saw and what they were taught. Before returning to their homes they were shown round the Serere Prison Model Farm, and the aims and organisation of these farms were explained to them. On their return they were given the opportunity of visiting similar establishments at Kumi and Ngora.

4. Smallholders' Courses.

Serere.—Eleven pupils completed their two-years' course on the smallholdings and returned to their homes to take up farming on their own. Of these, four are Teso, four Lango and three Badama. These formed part of the second batch of twenty-one pupils who started the course at the beginning of 1935. Of the remaining ten, three Basoga were

transferred to the smallholdings at Bukalasa at the beginning of 1936 and seven others either left or were dismissed at various times owing to their unsuitability for the work. Their places were taken by other candidates who are not due to finish their course until 1937. The Perryman Memorial Scholar from Bugishu finished the Serere portion of his training at the end of the year and was transferred to learn coffee work for a few months under the Agricultural Officer, Bugishu.

As in the previous year, six holdings were used for training purposes at Serere. Of these, three are twelve-acre holdings, two are eight-acre holdings and one is a twenty-acre holding. Full particulars of the organisation and cropping of these holdings have been given in previous reports.

The profit made on the three twelve-acre holdings for the year ended 31st March,1936, was Shs. 109, Shs. 94 and Shs. 91 respectively; that of the two eight-acre holdings was Shs. 60 and Shs. 40 and that of the twenty-acre holding was Shs. 154. In addition to this, of course, the holdings provided the pupils with food. The profits were not as large as in the previous year as the cotton crop was not so good and the price was lower; also, all the groundnuts produced had to be used for food and none were available for sale. In calculating the profits on the holdings 20% was deducted from the value of the implements and tools to allow for depreciation during the year; this was found to be a more accurate allowance for depreciation than the 10% which was deducted in previous years.

It is hoped, in time, to make these holdings entirely self-contained and to arrange that all fodder and grazing for the cattle shall be provided on the holding itself. As a move in this direction, two one-acre paddocks were added to one of the twelve-acre holdings during the year. These were fenced at a cost of Shs. 82 each and planted with a mixture of the best local grazing grasses.

The holders lost a considerable number of fowls and chickens during the year by the depredations of wild cats and hawks and it has been found necessary, in consequence, to lay out funds on wire netting.

As in the previous year, it has been found that the average amount of farmyard manure made on the holdings per head of cattle per annum was approximately one ton.

Establishment of Smallholders from Serere.

Reports on the seven Teso smallholders, mentioned in my report for 1935, who completed the course at the end of 1934, indicate that two are making a definite success of their farms, two are making satisfactory progress, two are making no headway, while one is a complete failure.

Bukalasa.—The larger, twenty-one acre, holding has been continued during 1936 as an investigation of the possibility of running a small "mixed" farm in the elephant grass area of Buganda. It has been carrying

a team of six working oxen, one breeding cow and three young bullocks. The new cowsheds and system of control, mentioned in the 1935 report, have proved successful in keeping the biting fly, *Stomoxys*, under control. Progress has been made throughout the year in the direction of making the holding self-supporting as regards cattle fodder and to do away with the necessity of the cattle grazing outside the holding. The holding is now practically self-contained in this respect. The fenced grazing consists of the three original half-acre paddocks and two acres that have recently been enclosed round the cattle sheds. Cut fodder that is fed in the sheds is obtained from the plots resting under elephant grass in the economic crops area of the holding.

Careful records of the yield of green fodder and dry bedding, kept over the 26 week period from the 1st June to the 30th November, showed that an acre of this elephant grass produced eight-and-a-half tons of green fodder and four tons of dry bedding during this time. This was found to be sufficient for the ten head of cattle during this period. The stand of grass on this acre was not a very good one, being about 55% of the maximum.

Under the system of management followed at Bukalasa, *i.e.*, with the cattle in the sheds from 1 p.m. to 6 a.m., but with the grass fodder supplemented by potato haulms, plantain peelings, etc., two acres of elephant grass will thus provide enough green fodder and dry bedding for the normal stock of such a holding, *i.e.*, a plough team of six oxen, one cow and two or three young animals.

Other points of interest in connection with "mixed" farming in elephant grass areas were that ploughing-out was found to be a cheap and efficient method of harvesting sweet potatoes when this crop was planted in ridges and when the crop was not too heavy, that the cattle readily ate sweet potato haulms and plantain and sweet potato peelings when fed in the shed but refused to eat edible Cannas. Cotton seed was eaten readily, even when fed dry and without salt.

The average monthly output of farmyard manure from the ten head of cattle has been about six tons per month, which is sufficient for dressing seven or eight acres per annum. This will be seen to be very much higher than the output at Serere and is probably accounted for by the fact that the cattle are in the sheds for a larger proportion of each 24 hours, that during that time they are stall fed with fairly large quantities of fodder and that in this area it is possible to provide them liberally with dry elephant grass bedding.

Sledges were used on the holding during the year for haulage purposes in place of the cart which had previously been used.

Not allowing for depreciation on the buildings but after allowing for all other expenditure, including labour, the profit on this holding for the year ended 31st March was Shs. 174. This low figure was largely accounted for by the poor yield of the 1935–36 cotton crop and groundnuts owing to unfavourable weather conditions.

The good effects of fairly heavy dressings of farmyard manure were evident during the unusually dry weather in the latter part of the present year on all crops that had been manured, and especially on the late sown cotton.

A class of six Baganda and three Basoga were taught on the smaller, thirteen-acre, holding at Bukalasa during the year. The teaching followed the lines of that given to the previous class.

Establishment of Smallholders from Bukalasa.

During the year one *ex*-pupil was established in his own holding in Singo county and another in Bulemezi; both have made a good start.

One of the holders mentioned in the 1935 report, who started his own holding in Bulemezi last year, has done very well and his gross profit for the year from the three acres under crops and from his poultry was Shs. 144.

Five Basoga who were trained on the Bukalasa smallholdings in 1933–35 started their own holdings in Busoga in 1936. Favourable reports have been received on their progress so far.

Smallholdings Schemes under Mission Authorities.

The Verona Fathers' Mission Farm School at Gulu and the Church Missionary Society's Farm School at Namutamba have continued to receive Government grants during 1936. Good work in training potential small farmers has been done at each of these centres during the year. Both of these centres were visited more than once and the staff of each institute visited Serere and Bukalasa respectively to ensure close co-operation with the Department.

II. Agricultural Education and the Schools.

Short courses in Elementary Agricultural and Nature Study for Secondary, Middle and Elementary schoolmasters were held as follows:—

Bukalasa.—A two-months' course for Secondary and Middle schoolmasters was held from the middle of February until the middle of April. It was attended by a class of sixteen from Buganda and Busoga.

A two-months' course for Elementary schoolmasters was held during July and August. This was attended by a class of twenty. This was probably the brightest class of teachers that has yet attended a course at Bukalasa and they showed a keen interest in their work.

Serere.—A three-months' course for schoolmasters from elementary schools was held during May, June and July. It was attended by sixteen teachers from schools in the Eastern Province.

Inspection of Schools.

Owing to the increased number of courses held during the year the staff had few opportunities of inspecting the agricultural work in schools and, as usual, advice had to be given, indirectly, through the staff of the

Department of Education. However, schools were visited when the opportunity arose, and the Agricultural Officer (Education), Bukalasa, was able to give ten days to school inspection in Mengo District during October.

It was again possible to station an African Agricultural Assistant in Busoga and half of his time was spent in helping with school gardens in that district.

General.

Meetings of the various District Education Boards and Farm School Boards were attended by members of the staff during the year.

Thanks are due to the Director of Education and the staff of the Department of Education for their help and ready co-operation; to the Director of Veterinary Services for kindly allowing one of his officers to lecture regularly during the year and to the Conservator of Forests for being kind enough to go to Bukalasa himself and give a lecture to the chiefs' class.

E. G. STAPLES,
Senior Agricultural Officer (Education).

APPENDIX I.

Financial Statement for 1936.

	£	£
DEPARTMENTAL EXPENDITURE:—		
Personal Emoluments		36,268
Other Charges		16,295
SPECIAL EXPENDITURE:—		
Preparation of Cotton Standards	125	
Special Investigation in connection with Pink Bollworm ..	89	
Compensation to Natives: Extension and Establishment of Experiment Stations	271	
Purchase and Erection of Insect Proof Cages	316	
		801
		53,364
Less re-imbursement by the Empire Cotton Growing Corporation towards the upkeep of Kawanda Seed Farm		800
		52,564

	£
REVENUE DIRECTLY DERIVED FROM AGRICULTURAL SOURCES:—	
Cotton Tax	128,927
Licences to Purchase, Store, Gin, and Bale Cotton, etc.	12,618
Sale of Crops, Plants, etc.	609
Tobacco Baling Charges	388
Fees—Smallholders Courses	77
Export and Sale of Trial Consignments	50
Licences, Coffee Curing Works	21
Licences, Coffee Graders	40
EXCISE DUTIES:—	
Tobacco and Cigarettes	56,881
Sugar	7,901
Tea	2,339

APPENDIX II.

Uganda Protectorate.

	1936	Position in 1936 compared with 1935.			
		Increase		Decrease	
	£	Quantity	£	Quantity	£
	..	..	..	4	1
M	161	..	..	45	6
O	1,991	..	47	59	..
F	2,583	147	349	..	..
C	381,158	102,985	150,208	..	.
C	..	..	..	..	..
	86	92	60	..	..
	90,127	..	..	73,299	78,231
S	4,087	398	2,193	..	.
T	34,821	..	4,033	153,430	..
C	1,317	..	570	..	..
G	4,637	5,762	81	..	..
T	80,028	49	1,813	..	..
T	203	1	156	..	..
O	3,326,879	272,424	504,140	..	..
G	29,179	877	20,433	..	..
S	263,180	35,077	127,401	..	..
S	19,227	..	1,598	69	..
	18,668	95	2,208	..	..
G	514	..	..	2,501	239
C	44,911	6,866	18,714	..	..
I	14,172	281,110	9,530	..	..
S	30,724	4,505	10,330	..	..
	19,372	73	932	..	..
I	249	..	17	..	..
I	439	..	..	..	58
	2,800	..	..	..	168
	75	..	..	9	5
	338	..	197	..	..
	94,527	8,713	59,622	..	..
	4,466,453	..	914,632	..	78,708

Cultivation, 1936.

im	Ground-nuts	Cassava	Tobacco	Wheat	Rice	Chillies	Peas	Mis-cellaneous
)00	22,000	90,000	..	..	..	250	..	..
250	14,900	8,300	360	2	10	17	..	..
)00	10,600	15,000	..	..	..	15	500	2.000
250	47,500	113,300	360	2	10	282	500	2,000
93	13,220	8,296	35	..	64	..	..	..
95	3,340	33,957	3	..	346	..	..	2
25	7,568	12,927	..	..	445	..	..	..
59	1,637	7,630	84	..	..	..	50	3,139
21	55,917	14,680	..	..	218	..	..	..
00	500	10	500	..	..	..	..	..
93	82,182	77,500	622	..	1,073	..	50	3,141
75	6,173	17,906	100	..	120	10	69,066	200
00	3,830	20,000	2,390	..	..	..	5,000	1,100
00	7,000	11,300	200	..	425	..	10,000	..
94	5,304	15,269	..	..	..	..	..	2,742
00	6,000	35,000	775	..	100	20	10,000	..
39	28,307	99,475	3,465	..	645	30	94,066	4,042
)0	6,615	4,447	..	1,012	317	228	503	2,641
)7	2,520	1,522	300	..	..	..	4,515	..
..	..	50	1,000	10	..	10	20,000	..
)7	9,135	6,019	1,300	1,022	317	238	25,018	2,641
)9	167,124	296,294	5,747	1,024	2,045	550	119,634	11,824

LIVESTOCK—1936.

Province and District	Cattle	Sheep	Goats	Swine	Donkeys	Horses	Mules
BUGANDA:—							
Mengo	111,348	61,388	285,692	42	..	1	..
Mubende	35,073	90,627	10,493	..	..	..	..
Masaka	77,813	13,053	53,938	20	..	..	..
TOTAL	224,234	165,068	350,123	62	..	1	..
EASTERN:—							
Busoga	156,969	32,917	188,284	..	..	..	..
Teso	386,082	47,652	146,525	..	43	..	..
Budama	100,593	24,414	73,737	..	32	3	..
Bugwere	136,011	34,233	138,581	..	22	..	..
Bugishu	152,706	61,907	132,028	50	45	2	..
Karamoja	241,275	489,333	281,227	1	23,806	..	..
TOTAL	1,173,636	690,456	960,382	51	23,948	5	..
NORTHERN:—							
Lango	431,181	99,328	190,552	..	7	..	..
Bunyoro	9,977	24,056	92,381	..	..	1	..
Gulu	55,610	22,523	45,135	7	14	..	..
Chua	65,444	9,497	29,648	13	3	..	1
West Nile	146,132	54,342	147,028	..	10	..	..
TOTAL	708,344	209,746	504,744	20	34	1	1
WESTERN:—							
Ankole	207,856	98,704	169,342	..	9	..	..
Kigezi	98,260	117,572	172,873	188	..	..	..
Toro	49,878	45,295	82,565	..	..	..	..
TOTAL	355,994	261,571	424,780	188	9	..	..
GRAND TOTAL ..	2,462,208	1,326,841	2,240,029	321	23,991	7	1

European Agriculture, 1936.

Province and District	Total Acreage Cultivated	Coffee		Para Rubber	Tea	Cotton	Tobacco	Miscellaneous
		Arabica	Robusta					
	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres
BUGANDA:—								
Mengo	14,597	2,075	4,896	8,611	840	..	..	5
Masaka	1,041	407	511	150	33	..	..	..
Mubende	1,019	95	190	..	734	..	..	..
TOTAL	16,657	2,577	5,597	8,761	1,607	..	..	5
EASTERN:—								
Busoga	604	131	472	15	..	..	..	..
Bugishu	81	81	..	..	..	..	..	..
TOTAL	685	212	472	15	..	..	..	..
WESTERN:—								
Toro	2,905	2,427	14	..	439	..	..	25
NORTHERN:—								
Bunyoro	2,250	697	580	1,179	..	..	16	..
West Nile	115	115	..	..	..	..	..	..
TOTAL	2,365	812	580	1,179	..	..	16	..
GRAND TOTAL ..	22,612	6,028	6,663	9,955	2,046	..	16	30

NOTE.—2,126 acres are interplanted areas.

Compiled from 172 Returns.

Asiatic Agriculture, 1936.

Province and District	Total Acreage Planted	Coffee		Para Rubber	Sisal	Tea	Sugar Cane	Cotton	Tobacco	Miscellaneous
		Arabica	Robusta							
	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres
BUGANDA:—										
Mengo	7,453	88	421	690	..	53	6,176	25	..	..
Masaka	320	5	90	100	..	..	35	45	..	55
Mubende	465	..	25	400	..	40	..	..	25	..
TOTAL	8,238	93	536	1,190	..	93	6,211	70	25	55
EASTERN:—										
Busoga	9,850	25	87	400	..	..	9,323	15	..	..
WESTERN:—										
Toro	40	40	..	..	..	..	..	..	..	..
NORTHERN:—										
Bunyoro	6,035	..	..	..	6,000	..	..	..	35	..
GRAND TOTAL ..	24,163	158	623	1,590	6,000	93	15,534	85	60	55

NOTE.—35 acres are interplanted areas.

Compiled from 24 Returns.

Details of Machinery at Ginneries in the Uganda Protectorate.—1936 Season.

Province and District	Ginneries		Total Registered Ginning Capacity Expressed as Single Roller Gins	Gins		Seed Openers	Presses		Engines		
				Roller	Saw		Hand	Power	Steam	Oil	Suction Gas
	Working (Licensed)	Silent		Working Ginneries							
EASTERN:—											
Busoga	20	15	563	405(*a*)	..	23	..	20	12	9	1
Budama	6	1	131	102(*b*)	2	6	..	6	1	4	1
Bugwere	10	3	231	157	4	10	1	9	7	2	2
Bugishu	3	1	57	38	..	3	..	3	3	..	..
Teso	14	11	347	194(*c*)	8	14	3	14	4	2	9
TOTAL ..	53	31	1,329	896	14	56	4	52	27	17	13
BUGANDA:—											
Mengo	33	12	629	480	..	34	..	33	20	9	7
Entebbe	9	2	191	163	..	12	..	9	10	..	1
Masaka	8	2	158	137	..	8	..	8	6	2	..
Mubende	12	1	131	122(*d*)	..	12	3	9	13	..	..
TOTAL ..	62	17	1,109	902	..	66	3	59	49	11	8
NORTHERN:—											
Lango	9	8	261	158(*e*)	..	10	..	9	6	3	2
Bunyoro	3	2	45	32	..	3	..	3	3	..	..
Gulu	4	..	42	42	..	4	1	3	4	..	..
Chua	2	..	25	25	..	2	..	2	2	..	..
West Nile	1	..	24	12(*f*)	..	1	..	1	1	..	..
TOTAL ..	19	10	397	269	..	20	1	18	16	3	2

WESTERN:—											
Toro	1	..	6	6	..	1	..	1	1	..	..
Ankole	..	1	7	..	..	..	..	..	..	..	..
TOTAL ..	1	1	13	6	..	1	..	1	1	..	..
	135	59									
GRAND TOTAL ..	194		2,848	2,073(*g*)	14	143	8	130	93	31	23

(*a*) Includes 33 Double Roller Gins.
(*b*) ,, 5 ,, ,, ,,
(*c*) ,, 10 ,, ,, ,,
(*d*) ,, 3 ,, ,, ,,
(*e*) ,, 38 ,, ,, ,,
(*f*) ,, 12 ,, ,, ,,
(*g*) ,, 101 ,, ,, ,,

ith 1934 _____